**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended): A rotary variable-volume machine comprising[[;]] :

(a) at least one piston element[[:]] ;

(b) a piston mechanism configured to move said piston element in a motion that is simultaneous orbital motion about a primary axis and rotation about a secondary axis that passes through said piston element, such that said piston element sweeps out an annular path of variable cross-section, said piston mechanism including at least one rotor configured so as to rotate about said primary axis of rotation, said at least one piston element being deployed on said rotor;

(c) ~~a~~ at least a first and a second stator portions ~~housing~~ containing between them a modified toroidal operational volume, said modified toroidal operational volume defined by said annular path, such that ~~the side~~ said at least one piston element moves through said modified toroidal operational volume, said piston element contacting walls of said modified toroidal operational volume;

(d) at least one inlet opening through said stator housing into said modified toroidal operational volume; and

(e) at least one outlet opening through said stator housing from said modified toroidal operational volume;

wherein said rotor is at least partially deployed within said modified toroidal operational volume, said rotor and said at least one piston element passing between said at least first and second stator portions.

2. (currently amended): The rotary variable-volume machine of claim 1, wherein said piston mechanism includes:

(f) a main shaft deployed in said stator housing, said main shaft mechanically linked to said rotor and configured so as to rotate about said primary axis; ~~and~~

~~(g) at least one rotor mechanically linked to said main shaft so as to rotate about said primary axis of rotation, said rotor being at least partially deployed within said modified toroidal operational volume, said at least one piston element being deployed on said rotor~~.

3. (currently amended): The rotary variable-volume machine of claim 2, wherein said at least one piston element is implemented as at least one pair of piston elements deployed on said rotor, said piston elements having at least a region with a thickness substantially equal to the thickness of said rotor, and each one of said pair of said piston elements is deployed opposite another one of said pair at 180° and lies in a plane that is at 90° to a plane of another one of said pair, and at any point of rotation where any one of said piston elements lies within a cross-section of said rotor, a surface area of said stator housing contacts said rotor thereby creating a seal area.

4. (canceled)

5. (currently amended): The rotary variable-volume machine of claim 2 [[4]], wherein a ratio of piston rotation to rotor rotation is 1:2, ~~therefore said at one inlet, said at least one outlet and said seal area is implemented as one inlet, one outlet and one seal area~~.

6. (currently amended): The rotary variable-volume machine of claim 2 [[4]], wherein said secondary axis of rotation is perpendicular to said primary axis, and said at least a first and a second stator portions are implemented as two opposing stator housing shell halves.

7. (currently amended): The rotary variable-volume machine of claim 6, wherein said rotor is implemented as a disc deployed on, and perpendicular to, said main shaft and at least partially deployed within said modified toroidal operational volume, said secondary axis lying in said rotor.

8. (currently amended): The rotary variable-volume machine of claim 7, wherein ~~each of said pair of~~ said at least one piston elements is attached to ~~opposite~~ an ends of a rotatable ~~axel~~axle lying on said secondary axis, rotation of said ~~axel~~axle affected by interaction between a first gear affixed to said ~~axel~~axle and second gear statically affixed to said stator housing, such that rotation of said main shaft causes rotation of said ~~axel~~axle.

9. (currently amended): The rotary variable-volume machine of claim 8, wherein each said piston element is implemented substantially as a disc.

10. (currently amended): The rotary variable-volume machine of claim 2 [[4]], wherein said secondary axis of rotation is implemented as at least a second ~~and a third axes~~ axis of rotation, ~~both of~~ which ~~are~~ is parallel to said primary axis, such that ~~each one of said pair of~~ said at least one piston elements rotates about ~~a corresponding one of~~ said second ~~and third axes~~ axis of rotation.

11. (currently amended): The rotary variable-volume machine of claim 10, wherein said stator housing includes an inner and an outer stator element.

12. (currently amended): The rotary variable-volume machine of claim 11, wherein said rotor is implemented as a cylinder deployed within said modified toroidal operational volume, said cylinder configured so as to rotate about said inner stator element and said main shaft, said second ~~and third axes~~ axis lying substantially in said rotor.

13. (currently amended): The rotary variable-volume machine of claim 12, wherein ~~each one of said pair of~~ said at least one piston elements is attached to a ~~corresponding~~ rotatable ~~axel~~axle, ~~each corresponding axel~~ said axle therefore lying on ~~one of~~ said second ~~and third axes~~ axis of rotation, rotation of said ~~axels~~ axle affected by interaction between a first gear statically affixed to said stator housing and at least a second ~~and third~~ gears ~~each~~ affixed to ~~corresponding ones of~~ said second ~~and third axels~~ axle, such that rotation of said main shaft causes rotation of said ~~axels~~ axle and said rotor.

14. (currently amended): The rotary variable-volume machine of claim 12, wherein ~~each~~ said piston element is implemented with a substantially rectangular outer contour.

15. (canceled)

16. (canceled)

17. (new) The rotary variable-volume machine of claim 10, wherein the direction of piston rotation is opposite to the direction of rotor rotation.

**Amendments to the Drawings:**

The attached sheets of drawings include changes to Figs. 1, 4 and 5. These sheets, which include Figs. 1, 4 and 5, replace the original sheets including Figs. 1, 4 and 5. In replacement Figure 1, a clearer illustration of embodiment 100 has been substituted, previously mislabeled element 42 has been correctly labeled, the line to element 2 has been changed to better show its location, and several superfluous lines have been removed. In Fig. 4 previously mislabeled element 250 has been correctly labeled. In Fig. 5 previously omitted element numerals 220 and 222 have been added.

Please cancel Fig. 3.

Please add Fig. 1a, which is an opaque version of the transparent exploded view of original Fig. 1, and is therefore number accordingly.

Attachment: Replacement Sheet Annotated Sheet Showing Changes